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ABSTRACT

Although the formal extension work in Canada has been patterned after the United States Cooperative Extension Service to a considerable degree, there are some important differences between the extension education systems in the two countries. The public, private, and voluntary sectors all play significant roles in Canada's extension and technology transfer systems. Canada's public extension systems generally have less direct federal involvement nationwide. Not only does private sector spending on extension programs in Canada exceed government spending, but it is also increasing. If one considers the fine line between information and advertisting, private sector spending to disseminate information on agriculture may be even more extensive than current data indicate. Notwithstanding the generally positive view and high regard expressed by farmers for existing Canadian extension education systems, there seem to be a number of needs and opportunities for enhancing these systems. Research and extension linkages should be enhanced, agency roles should be redefined and clarified, and coordination within and between sectors should be increased. Efforts must also be made to reduce uncertainties about the role of extension agents and to reduce the information overload that exists in many areas of agricultural extension education. Other areas in which efforts and funding must be expanded include process research and programs to upgrade professional competency. (MN)

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OPPORTUNITIES AND CHALLENGES OF LINKAGES WITH INTERNAL
AND EXTERNAL EXTENSION STAKEHOLDERS -- THE CANADIAN EXPERIENCE

by

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INTRODUCTION

The Extension systems in Canada, particularly in the public sectors, are organizationally quite different from those in the United States -- yet I expect we share some common opportunities and challenges. Let me assess some of the current Extension systems and stakeholders in Canada, particularly as seen by users, and then address some opportunities and challenges as I see them.

What do we mean by "extension systems"? They encompass governments and other public agencies, and a multitude of business and voluntary sector members. Most of us have incomplete pictures of the enormous scope of activities of each of the sectors or the complexity of the processes involved.

Many terms are used to identify the processes and functions. They include: advisory services, marketing, Extension, technology transfer, information dissemination, outreach, and liaison. Definitions vary but often the terms are used interchangeably.

All of these embody the common component of "information". There is also an implied and essential linkage between researchers, usually through intermediaries, to the users.

We have come a long way in Canada since the first experimental seed plot at Port Royal, in 1606, and Governor Talon struck upon the notion of research and demonstration on model farms in Quebec in the 1660's. Although Talon was unsuccessful in attempts to domesticate moose and beaver, he recognized the need to have "proven" experts or farmers demonstrate and teach appropriate technologies in the colony (Fowke, 1947). Let us take a summary look at some current systems in Canada. We have a lot of stakeholders!

CURRENT SYSTEMS AND MAJOR ACTORS

The public sector (including government, as well as colleges and universities), private (agricultural business and industry, financial agencies, some media, and the like), and voluntary sectors (such as farm organizations or commodity groups) all have significant roles in the Extension and technology transfer systems in Canada.

The British North America Act of 1867 defined education as a provincial responsibility and Extension also fell within the provincial domain. As a result there emerged systems of government Extension that differed from province to province. There was variable federal input and little imposed standardization.

The typical Extension service that emerged, beginning with Ontario in 1907 and followed soon after by most provinces, was administratively located as a Branch within the provincial Ministry/Department of Agriculture. One or more Extension staff were stationed in each local County/District, with a local Ag.Rep./District Agriculturist/Agronome in charge, with subject matter specialists (stationed at regional, provincial, or research station offices) available to complement local staff who were accountable through Regional Supervisors to a provincial Branch Director. The number of local offices varies from 54 (in Ontario, one of our largest provinces) to three (in Prince Edward Island, our smallest province).

Although not mandated to do Extension work, there have been substantial federal contributions through voluntary and cost shared programs with provinces. These included programs such as the century old Experimental Farm/Research Branch system, Prairie Farm Rehabilitation Administration, Agricultural Rehabilitation and Development Administration, small farm development agencies, Farm Credit Corporation, as well as a vast

array of policies and policy instruments designed to regulate and provide incentives within the agri-food system. The term Technology Transfer has taken on a relatively recent emphasis in Canada and seems to have been adopted by the Federal government as a means of avoiding the concepts of either Extension or education.

All things considered, Agriculture Canada may be the major public information-technology transfer agency in most provinces, but it is seldom recognized or acknowledged as such.

Canadian academic institutions, with some exceptions, do not have mandated responsibility for public agricultural extension. They function in supportive or complementary fashions to the Extension systems of the provincial governments.

Some interesting differences exist in the public sector between Extension systems in the United States and Canada. Formal extension work in Canada has been patterned to a considerable degree on foundations laid by the U.S. Cooperative Extension Service. My paper outlines some of these features if you are interested!

The 1862 Morrill Act is credited as not only the most significant legislation regarding agricultural extension, but the most important single piece of social legislation in the history of the United States (Boyle, 1977). It was an Act that promoted the idea that education be available to everyone, not just the privileged few. More importantly from the Extension point of view, it established the Land-Grant Colleges - at least one in every state. Twenty-five years later the Hatch Act created the State Experimental Stations and established a relationship between the United States Department of Agriculture and the Colleges. When the Smith-Lever Act (1914) created the Co-operative Extension Services, these Land-Grant Colleges provided the administrative base for an organized

structured system which formally involved the federal, state, and local government (Boyle, 1977). Although not truly a national system it resulted in considerable standardization in the structure and programming approaches of the Extension Services in all States, through reporting systems to the Federal Extension Service in the U.S.D.A. and national program development work, and clear-cut linkages between research and extension. They also get national programming in many cases because Congress says it with "money"! The public agricultural extension systems in Canada generally have less direct federal involvement nation-wide.

The Co-operative Extension Services in the U.S.A. are widely acknowledged as the largest problem solving educational system in the world (Vines and Anderson, 1976). Many interesting and significant happenings have influenced its evolution. For example, the economic chaos of the 1930's led to massive pressure on Extension to administer government farm adjustment programs and agencies for the governments. This led to a debate among the Land-Grant Colleges, farm organizations, and governments as to the appropriate roles and function of Extension. The Mount-Weather Agreement, in 1938, allowed Extension to shed the government service and regulatory roles and return to their educational function. This was significant since it reaffirmed that Extension should take the lead in identifying needed programs, based on problems and opportunities, and then develop educational programs to meet these problems.

Public extension systems within many provinces in Canada seem to have undergone more frequent organizational restructuring, and sometimes major changes in programming emphases, compared to the Co-operative Extension Services within American States. There are likely to be both advantages and disadvantages in this phenomenon. Provincial autonomy may permit

greater flexibility to more quickly accommodate unique, changing and emerging client needs. There is always the danger, however, that emergencies or political expediency may precipitate hasty organizational or program changes that overlook knowledge and accumulated experience.

The private sectors have a vast array of agencies and information programs in Canada. Their influence and importance are increasing. If the private sectors are recognized as good corporate citizens, and if they establish good rapport with users, they will be the major sources of farmer information for many new and particularly established technologies. Frequently the private sectors respond more quickly to new or changing needs of clients. The profit motive does not assure accountability to the public but it does stimulate responsiveness!

CONTRIBUTIONS

Agriculture Canada's funding of agricultural research and development in 1983 - 84 totalled about \$219 million (estimated at \$279 million in 1985-86). Provincial funding of agricultural research in 1983-84 totalled nearly \$60 million. Funding of provincial government Extension services last year totalled about \$100 million (Touche-Ross, January 1986). When one includes the information programs and efforts to promote technology transfer provided by Agriculture Canada, it is apparent that their expenditures in technology transfer/Extension are likely to exceed those of all provincial governments combined.

Private sector educational and information expenditures may even exceed, by a considerable measure, those of the government sector. These figures are difficult to capture as are some distinctions between advertising and information!

Few comprehensive assessments of the impact of public

Extension/information systems have been undertaken in Canada, although a number of studies have examined farmers' use and perceptions of various information sources. Comprehensive assessments of the impacts of private sector information and networks are even less well documented.

A 1983 Alberta Agriculture study found that farmers rated printed materials (magazines, newsletters, government bulletins) as their most useful source of agricultural information because of opportunities for storage, retrieval or referral. The next most important source was neighbours, followed by specialists and experts. Most important subjects were: selection and use of agricultural chemicals, business management, crop production (maybe related to the first subject), home management and family relations, and daily market information.

A 1984 Saskatchewan Pool study found somewhat similar farmer perceptions. Most important information sources were farm magazines and newspapers, followed by Saskatchewan Agriculture publications, then radio/television, Ag. Reps., university/colleges, Agriculture Canada, neighbours and friends, elevator agents, retail suppliers, credit and bank agencies, and veterinarians. Most important subjects were crops management, followed by soil management, and farm business management. Some need was expressed for improved or increased information in these areas, (O'Neill, 1984).

A study by Furtan (1981) in Saskatchewan found that farmers ranked the Agricultural Representative highest as the most important source of information about technical production matters.

In a 1984 study in Saskatchewan, Whale (1984) tried to determine sources of information based on farmers' level of knowledge about a technology. Farmers first tended to obtain technical information from Agrologists either in government or industry service. They then tended to

consult with other practising farmers to see how a new practice is implemented under circumstances similar to their own. The third type involved conferring with family members, or others with vested interest in the farm operation, as to whether the new practice could be applied within the farmer's range of financial and labour resources. The greater the perceived risk, the greater the tendency to engage in all three of these consultations.

The Whale study made a distinction between information related to new farming practices or that by which to keep up-to-date. Farmers preferred contact with "authoritative people" when seeking new ideas and details required to make a decision about a new farm practice. On the other hand, magazines, newspapers and other forms of mass media were the channels preferred for information for up-dating.

These studies yielded somewhat similar results to those which we have undertaken in Ontario (Blackburn, 1986). In several studies between 1980 and 1985 farm papers and magazines rated very highly, as sources of farm information, as were Ministry of Agriculture publications and county programs and staff. Neighbours were also important information sources. Commercial salesmen and representatives, bankers and farm credit staff were rated as moderately important. Incidentally, agri-leaders (chosen by the Agricultural Representatives in each county as farmers whose views on agricultural matters were well respected in the farming community) rated provincial ministry programs and the University of Guelph slightly more important than did a random sample of farmers. Conversely the random sample farmers rated neighbours, radio and television, agri-business representatives and salesmen, and financial institution officials slightly more important than did the agri-leaders.

One of our studies (Chamberlain, 1984) found that the most important kinds of information, as rated by farmers, were: production information, followed by farm business management and then marketing. The degree of importance of various sources of information varied a bit depending on the nature of the needed information. In production technology, the most important source was other farmers, followed by provincial ministry staff and publications, then farm papers and magazines, closely followed by suppliers. Private consultants and radio and television were rated primarily as not important or only slightly important in this area. In the area of business management, consultants were rated first followed by provincial ministry publications. In the area of marketing, most important information sources were marketing firms, followed by other farmers, farm papers and magazines, and then radio and television and provincial ministry staff and publications. When it came to purchasing supplies, the most important sources of information were suppliers themselves, followed by other farmers, while farm papers and magazines rated a close third followed by provincial ministry publications. Provincial ministry staff and material, and farm newspapers and magazines, were the highest rated source of information regarding farm policy.

Reports of farmers' perceptions of information sources are useful but one must be cautious in their interpretation! In most cases the research does not really reveal the networks nor the significance of the contribution of the various sectors. A few studies (such as Whale, 1984, and Webster, 1986) attempted to address some of these problems. For example, farmers rated farm magazines as important sources for all kinds of information. Public Extension's indirect contribution by providing information to the press, and training business and agency personnel, largely goes unnoticed by farmers. Business and industry, universities,

and various other agencies are also involved in this notion of "wholesaling" information to other agencies and media as well as directly "retailing" to users.

There has also been a good deal of criticism of the classical diffusion-adoption models as described by Rogers (1983) and others. However, they seem a good depiction, for novices in the field, of significant components of Extension or technology transfer theories and practices. Unfortunately their frequent referral as the "trickle down" process tends to infer that they only work by inputting at the top through innovators and early adopters. This is an over-simplification that does not adequately describe the models or the processes!

A typical criticism (Roling et al. 1976) is that the use of the "trickle down" diffusion process has contributed to an increase in the disparity between the "haves" and the "have-nots". It is a frequent claim that instead of people who resist change (the late adopters and laggards), we have people who lack the opportunity or the resources required. These types of criticisms make some excellent points but they do not refute the relevance and value of the models. It is possible to introduce change in manners other than the linear fashion (through innovators to the others) but rather one can "target" the efforts at other levels. However, the design of the latter efforts are likely to be different if we aim at reasonably optimal effectiveness.

Recent studies support the general notions embodied in diffusion-adoption models. There is certainly acceptance of the idea of a number of interrelated elements that are operative. Potential new technology users tend to go through an individual decision process from initial awareness, and so on. The process might be interrupted or stopped at any stage. We

also recognize that there is time lag, of varying lengths depending on many factors, from the time the first users adopt until the majority do so. It is also clear that different sources of information are important at different stages of the process and for different adopter categories. The characteristics of an innovation may substantially influence its rate of adoption as well as the importance of various sources of information. Influential features include: the relative "newness", refinement or adaption to local conditions, the risk and uncertainty associated with its use, and a number of other features. These notions have not been changed much by recent research, however, the private sector has certainly increased in importance and the means of information transmission have also been greatly enhanced.

New and emerging information technologies, many of them associated with microcomputers and data banks, have greatly enhanced the techniques and devices available to facilitate the rapid transfer of information to improve or increase the rate of adoptions processed. We are experiencing rapid advances in information technology!

OPPORTUNITIES AND CHALLENGES

Many issues remain unresolved about the future Extension worker in Canada. Are moving away from the trend of increasing specialization to a staff of generalists who can more rapidly adapt and develop specialties as needed? Will Extension workers be leaders in the use of emerging communication technologies or will they be pulled kicking and screaming into the information society? Evidence suggests the former (e.g. Ross, 1986). Who should be the clients that Extension serves? In the United States, you are also asking the question of who will champion Extension's cause as you move to more urban than rural clients. Will Canada follow or

can we afford not to?

Notwithstanding the generally positive view and high regard expressed by farmers, there seem to be a number of needs and opportunities for enhancing the extension systems in Canada.

1. Enhanced Research - Extension Linkages: A good system should provide for a flow of information from both a source of new technologies (such as researchers) to ultimate users (such as farmers). It should also provide feedback through the system to facilitate needed adaptation or further investigation. Close coordination of the research and development (R.&D.) and diffusion processes may greatly improve technology transfer. A technology that is identified, initiated and supported in development by its users is much more likely to be adopted than those that are researched or developed in isolation from final users. Conscious involvement of users in development could both reduce the cost of development and increase the rate of adoption. The Farm Lab program in Saskatchewan involving the University and Departments of Agriculture with local advisory committees and farmers. it seems to me, was a concept that held excellent potential for achieving these kinds of linkages as well as building networks among different agencies. Coordination permits interactions where the real pay-off comes:

It is important to establish linkages also between the various agencies that are involved in research and development (R&D) and Extension systems in Canada. The Canadian Agricultural Services Coordinating Committee system (CASCC) attempts to establish some of these linkages in the public sector, with some private sector involvement, and I am sure it has achieved some measure of success. Some provinces have also established broadly based advisory committees to help establish research and Extension priorities. One wonders about the extent to which these advisory

committees can provide substantial input in light of the breadth of their mandates and the relatively limited time available for interaction.

Most researchers feel a commitment, and indeed many have a formal obligation, for the diffusion of the results of their research. A few years ago, we found that agricultural researchers in Ontario used a variety of methods to diffuse the results of their research into the information system. This included direct meetings with farmers, news releases, field days and demonstrations, bulletins, and update sessions with government and industry staff. The publication of articles in scientific journals, however, was the major effort reported. Our study of county ministry staff, and agribusiness technical representatives and field men, found that very few of these people subscribed, or had easy access to the publications in which the articles were contained, and almost all that did have access had not read them. Extension and agribusiness professionals depended on executive summaries, and personal contact with researchers or specialists to bring them up-to-date. Unfortunately the reward system for Canadian university and government researchers seems not to provide major incentives for the diffusion of research results effectively into the information systems.

The location of Extension specialists with expertise in a particular area is a continuing issue in trying to establish more effective research-Extension linkages in the public sector. The operative reward systems, which includes acceptance by peers, salary, promotion, and other forms of recognition, are important considerations.

2. Redefining and Clarifying Agency Roles: Possibly the most troublesome problem areas in Canada are the relatively weak Extension-related formal relationships between Agriculture Canada, provincial agricultural

departments, and agricultural faculties. Maybe it is time for a more comprehensive federal-provincial accord and cooperation in Extension/information/technology transfer programs to provide for a more effective, efficient, and equitable system across Canada. The more dependent we become on science in agriculture, the more dependent we become on integrating the systems! Provinces cannot be self-sufficient and compete effectively in emerging "world" systems!

At the present time it seems the federal government cannot admit that they are engaged in Extension and, although they may be undertaking major programs in the field of information and technology transfer, they seldom get invited in a leadership capacity to come together as Extension peers. The federal government, for example, has no formal position on the Canadian Agricultural Extension Council nor is it a consistent participant in that council's deliberations. No one speaks nationally with authority on behalf of Extension!

It seems unlikely now in Canada that we could easily achieve a system like the Land Grant College system in this country (with involvement of all levels of government with agricultural universities), even if it were deemed superior -- unless we have major incentives and initiatives for change. As a consequence, the federal government is not likely to make major initiatives to build incentives for increased efforts by their own personnel to contribute more in the Extension domain. Expanded efforts and coordination are more likely to come under some other rubric. Certainly much is now being professed under the term Technology Transfer.

For many of the same reasons, it is doubtful if agricultural faculties have the real will, resources, or expertise to provide administrative leadership or rewards and incentives to staff in enhancing Extension efforts! It would take a major refocusing and commitment in the

current reward systems in universities for significant change. Certainly it would require major decisions by federal and provincial politicians for more tangible federal involvement and for leadership by agricultural universities. Politicians, however, have their own reward systems. They often look to civil servant activities and programs as vehicles to assure or enhance their apparent contributions, and potentially their rewards (re-election).

We must keep in clear focus the need to coordinate and transform the systems. I suspect that the public might be better served by a slackening of some of the institutional rigidities that now exist in the government sector agencies. The public may very well be disappointed and impatient at the apparent reluctance of institutions to cooperate more fully at an administrative and field level in Extension and technology transfer in Canada.

Notwithstanding these comments, a recently commissioned study of research/technology transfer/Extension linkages in Canada, funded by Agriculture Canada and supported by most provinces, has demonstrated that a very complex system of linkages does now exist. These are generally supported by formal and informal networks that have evolved in each province and nationally (Webster, Agdevco, 1986).

3. Coordination Within and Between Sectors: A vast array of agencies are involved in the Extension systems in Canada. Certainly agencies of the public sector have no monopoly. Indeed, the number and scope of private agencies involvement has increased dramatically.

The lack of a formal system for involvement of the federal government in Extension across Canada, as mentioned earlier, presents particular problems. Many provinces have entered into agreements to permit this

involvement and many have set in place systems to at least provide some measure of coordination and complementarity. It is probably more reasonable to expect or demand greatest coordination in the government sectors although the inclusion of the private sectors is highly desirable. The private sectors will likely insist that they maintain a degree of independence and flexibility and the opportunity to satisfy the needs of clients and agencies. However, this does not preclude their involvement, in a formal or informal fashion, in the Extension networks.

The government sectors, including agricultural faculties, probably need to take the leadership role in facilitating networking among all sectors. Certainly the Agricultural Institute of Canada (AIC), an association of professional agriculturists and including provincial Institutes of Agrology and affiliated scientific societies such as the Canadian Society of Extension (CSE), do provide some networking functions among agricultural professionals. I suggest that the AIC expand this role. They are an organization that brings different disciplines and agency personnel together. Fostering positive relationships as well as broadening understanding are vital roles for the Institute.

Baker (1985) highlighted this need for increased coordination and networking and suggested that, in the future, Extension agencies have the options of competing or cooperating. If they choose to compete, then the private sector will have some distinct advantages in serving the commercial operator.

There seems little doubt that political and public criticism of government bureaucracies has undermined the public's perception of the civil service. Many question whether civil servants can or will do an efficient and effective job. In the case of provincial Extension staff, this criticism has been partially overcome by the ongoing practice of

stationing staff in communities within their jurisdiction. These Extension workers become known and accepted as community members and friends as well as professionals who have greater responsibility to them. The grassroots commitment to problem-solving, which characterized Extension organizations beginning in the 1920's, has also led to much greater support for field staff. Many would argue that this grassroots commitment has faded, particularly in the more visible areas of client involvement in assessing needs and planning programs, and many workers are relying on reputations established earlier.

Each sector occasionally seems a bit quick to criticize other sectors. This also tends to undermine public confidence not only in civil servants but also private sector professionals. Needless to say, it frequently undermines the public confidence in the critic. Seldom do we have a complete sampling of the broad range of activities undertaken by others. Perhaps a temporary exchange of jobs might broaden the understanding between federal, provincial, academic, volunteer agency, private consultants, and other business professionals, and lead to much greater cooperation.

4. Reducing Extension Agent Role Uncertainties: There have been a number of distinct historical periods in the evolution of Extension in Canada and history has a way of repeating itself.

When our provincial Extension services were first established, beginning in 1907 in Ontario, the content of programs were basically predetermined by staff themselves, and by administration, and these were very much related to production problems in farming. Extension staff were also trying to remove uncertainty about their competency. During the 1920's, educational programs were developed in response to grass-roots

assessment of needs with farmers and farm organizations, and by combining these with scientific facts and trends.

The 1930's were characterized by government program leadership and a de-emphasis of the educational roles. Major attention was devoted by Extension staff to emergency programs and the administration of relief among farmers. This was followed by "war-emergency" programs, from 1939 to 1945, using a reduced staff whose emphasis was encouraging farmers to produce food for the government in support of the war effort.

The period following the Second World War was a confusing time for Extension staff. Staff consisted of individuals hired during the 1920's (when major educational efforts were being developed with substantial involvement of clients in the determination of needs), those hired during the 1930's (who saw the role of Extension as administering relief), those who came on during the War (and perceived Extension as selling predetermined government programs), returning veterans, and new recruits. Each tended to perceive the "true role" of Extension as that which prevailed when they were hired (and they looked at subsequent programming approaches as being "temporary aberrations"). In the United States, the Mount Weather Agreement in 1938, following much debate by farm organizations, governments, and L.-G. Institutions, established Extension's primary role as educational and not the administration of government programs (although there was general agreement that county Extension workers should provide leadership in emergency programs and temporarily set aside their other efforts if required). Since the Mount Weather Agreement covered all Land Grant Extension Services in the United States, this declaration was universal. It clearly separated the functions of "educational and service" from "monitoring" for eligibility and the like. No such universal agreement existed in Canada although most provinces

returned to a system of educational programming (with emphasis on processes of public participation) during the 1950's and 60's (as had begun to emerge in the late 20's). Some provinces (such as Saskatchewan which in its Agricultural Representative Act in 1945 established a network of Extension workers across the province and a formalized system of agricultural advisory committees in each rural municipality) worked much more with advisory councils. It was also a time when major research efforts were being committed to the diffusion-adoption processes and new graduate programs were being established to enhance the process skills of Extension workers.

The late 70's and the 80's, with the emergence of severe problems in many farming sectors, has seen a substantial return to public Extension responsiveness to political initiatives and short term programs. Financial constraints have seen the reduction in staff training in Extension processes and the early retirement of many staff members hired in earlier eras. Not only have many recent staff been added since the times of more comprehensive local planning, but a substantial number of reorganizations of provincial services have been led by senior staff whose training and experience have not been associated with Extension or programs of technology transfer. If and when we return to a more "normal" situation within the agricultural industry, we may very well be in a time of substantial confusion of Extension roles that were characteristic of an earlier era.

There may be problems in re-emphasis of broader based educational programming when politicians see Extension as a potent instrument for political gain. Some of the techniques of popular grassroots participation in planning of programs seem to be largely a forgotten practice in many

public Extension organizations. Extension may thus suffer a decline in client support or commitment to many of its programs (such as soil conservation) and there may be increasing pressure to demonstrate that it is still providing good value for the public investment.

Some might also ponder whether Extension in some quarters is suffering from problems of bureaucratization. This might include too many middle management positions with a resultant over-organization and consequent reduction in creativity.

5. Reducing Information Overload: We have mentioned new information technology and their potential for massively increasing the flow or availability of information. Machines were invented to save labour but in some instances they are a mixed blessing. In areas where there is the greatest amount of available information, or a good deal of conflicting information, or information from a wide range of sources, the end user may suffer from "information overload". Relatively unlimited access to information made possible by an "information technology" does not necessarily accelerate the rate of adoption. Rather, it may be adding complexity and uncertainty and therefore have an impeding effect (Whale, 1985). Areas where this has been cited as problems include agricultural chemicals, soils management and crops management.

Contributing to this problem, in electronic information systems, is the inclusion of large amounts of information into the data base, that is of no interest to most users. These "information driven" systems are much less workable than more specific "needs driven" systems. These problems are being increasingly recognized.

The Science Council of Canada also recognized other potential problems in our microtechnology information age. They commented on data banks, particularly concerning the potential invasion of privacy and

anonymity, that "in an information society -- the small town is everywhere" (Cordell, 1985).

6. Expanding Process Research: The level of support for research in Extension processes is extremely low and almost non-existent at the federal level and in other public agencies. Documentation of this general need, and specific areas requiring attention, was undertaken recently (Baker, 1984). Subsequently Baker (1985), reemphasized the notion that, if the effective transfer of new agricultural technology and the provision of information to farmers and other people is essential to achieving and maintaining as much efficiency as possible in Canadian agriculture, some greater investment in Extension research and training is surely warranted!

Baker (1985) identified four primary barriers to achieving greater Extension research especially during these times of financial restraint. First, Extension research is often considered as sociological and therefore of little value to production agriculture. The administrators of agricultural agencies, who tend to be trained as biological scientists and unfamiliar with the social sciences, give Extension research a low priority. Second, administrators of public sector programs are often reluctant to have their Extension systems and programs studied or evaluated, except perhaps in an internal review. Third, those with access to research dollars and influence, such as provincial and federal officials of CASCC and the Canadian Agricultural Research Council (CARC), are predominately seeking funds for technical research in agriculture. They will likely continue to hold the purse strings rather tightly on research on Extension, and technology transfer processes, especially during times of budget cut-backs on the existing system of agricultural research. Fourth, in the university setting, such research is considered too "applied" to be

given high priority.

7. Upgrading Professional Competency: The Bachelors degree in agriculture is the formal educational attainment of most Extension field staff in the public sector in Canada. Few field staff or administrators have formal training in the process skills. Most have gained their expertise by trial and error and through in-service training and apprenticeship. This is in stark contrast to comparable services in the United States where most Extension specialists hold Ph.D. degrees and nearly one-half of the county Extension workers hold Masters degrees. Compared to the United States, in formally and highly trained field staff and administrators, Canada fares very poorly. In addition, many who obtain higher degrees are lured out of Extension. It should also be acknowledged, however, that this may be a mixed blessing in some cases. Sometimes too much emphasis on degrees may add to bureaucratization and standing on the dignity of the degree!

In spite of these issues and uncertainties, studies indicate that public Extension workers continue to play useful and important roles. A very substantial investment of public resources is committed to their work. One study suggested an average cost of about \$100,000 per local agricultural Extension worker in Canada including specialists and administrative costs (Brown, 1984). In light of the substantial continuing expenditures, and the complexity of the skills required, staff development is perhaps one of the least systematized features of agricultural Extension in Canada today, yet it is surely amongst the most important! (Baker, 1985).

SUMMARY

I hope that this overview has provided some measure of the status of Canadian Extension systems and some opportunities and challenges. It is unfortunate that many agricultural professionals have an overly simplistic impression about conducting efficient and effective Extension programs. The classical diffusion-adoption models, while providing an excellent overview of some of the relevant processes and theories, may have reinforced this over-simplification. The relevant theories and processes, drawn heavily from the social sciences and education, are far from simple.

Although there is substantial cooperation among all sectors, a significant remaining issue is the jurisdictional problem between the federal and provincial governments. Some more universal agreement on more fully sharing these public Extension efforts (may be with agricultural faculties providing a vehicle for reducing related political concerns insome cases) is an area that may greatly facilitate the impact of their separate efforts. An accord in these areas would allow them to meet together in joint effort without hiding behind definitional differences. It might then as well allow the federal government to formally build a reward system for staff that provides incentives for increased and more effective efforts in information/Extension/technology transfer processes. One might wish the same for agricultural faculties. These changes will not come easily in the public sector since, in many respects, our future is mortgaged by what happened in the past. The private or non-government sectors do not suffer from the same constraints.

The public sector should not expect to be the major source of information for all things. Indeed, private sectors are now the major sources in many areas particularly in refining and updating established technologies. Farmers use separate strategies for new farm practices as

compared to many known or day to day operating information needs (such as markets and weather). The farmer has developed a framework for processing the latter but they may still need help in translating information about new practices and where there is an information overload, conflicting views, or high risks and uncertainties. The public sector is likely to continue to be important in these areas.

We may not be able to achieve the ideal Extension system in Canada -- even if we knew what it was! Hopefully we can continue to examine and consider modifications and enhancement of the existing systems - particularly in the public sectors. Somehow we must make it possible to formally establish rewards in these sectors, beyond provincial government services, that will assure greater integration of research and Extension/technology transfer systems. The more we get into information technology - the greater the return to coordination! We also need someone who can speak with authority on a national basis for Extension in Canada !

BIBLIOGRAPHY

- Alberta Agriculture (1983) "Information Needs of Alberta Farmers and Farm Families". Planning Secretariat, Alberta Agriculture, Edmonton.
- Baker, Harold R., (1984) "A Proposal for a Canadian Study of Agricultural Technology Transfer/Extension". Unpublished report to the Canadian Agricultural Research Council, Ottawa.
- Baker, Harold R., (1985) "Future Options and Prospects in Rural Extension and Technology Transfer". Public Lecture sponsored by Department of Rural Extension Studies, University of Guelph.
- Bennett, Claude F., (1985) "Agricultural Extension: Its Connections With Research and Commercial Technology and its Priority-Setting". Presentation at American Association for Adult and Continuing Education convention, Milwaukee.
- Berg, Norman A., (1985) "Preservation of the Nation's Heartland: Past, Present, Future". The White Memorial Lecture at the University of Guelph.
- Blackburn, Donald J., Editor (1984) Extension Handbook. University of Guelph.
- Blackburn, Donald J. (1986) "Where Farmers Get Information". Paper presented to the Food Processor's Fieldmen's Conference, O.A.C. Agricultural Conference, University of Guelph.
- Bonnen, James T. (1986) "Agriculture in the Information Age". Plenary Address at Agricultural Institute of Canada National Conference, Saskatoon.
- Boyle, Patrick G., (1977) Problem-Solving Programming. University of Wisconsin, Madison.
- Brown, Nancy, and Brinkman, G.L., (1984) "Returns to Research Undertaken At The University Of Guelph On Non-Protein Nitrogen Silage Additives". Agricultural Economics. University of Guelph.
- Chamberlain, Melville T., (1984) "Financial Management Practices and Skills Used by Wellington County Farmers". Unpublished M.S. thesis, University of Guelph.
- Cordell, Arthur J., (1985) The Uneasy Eighties: The Transformation to an Information Society. Summary of Background Study 53, Science Council of Canada, Ottawa.
- Evenson, R.E., Waggoner, P.E., and Ruttan, V.W. (1979) "Economic Benefits from Research: An Example from Agriculture" Science 205:1101-07.
- Fowke, Vernon C., (1947) Canadian Agricultural Policy: The Historical Pattern. University of Toronto Press, Toronto.
- Furtan, W. Hartley, (1981) "Saskatchewan Farm and Household Survey".

Unpublished raw data, Department of Agricultural Economics, University of Saskatchewan, Saskatoon.

O'Neill, Don., (1985) "Farm Information Preferences". Saskatchewan Wheat Pool, Regina

Rogers, Everett M., (1983) Diffusion of Innovations. (3rd Edition). Macmillan Publishing Co., Inc., New York.

Roling, Niels G., Ashcroft, Joseph, Wa Chaga, Fred, (1976) "The Diffusion of Innovation and the Issue of Equity in Rural Development". Communication Research, 3 (2).

Roling, Niels G., (1985) "Whither Rural Extension". Public lecture at the University of Guelph.

Ross, Randolph W., (1986) "Computers Down On The Farm". Agrologist Volume 15, Number 2. Agricultural Institute of Canada, Ottawa.

Thomsen, Joseph, (1985) "A Review of Agricultural Technology Transfer Policy Programs and Instruments". Working paper prepared for Regional Development Branch, Agriculture Canada: Ottawa.

Touche Ross and Partners, (1986) "An Assessment of the Potential for Technology in the Agri-Food Sector" Draft paper.

Vines, C. Austin, and Anderson, Marvin A., (1976) Heritage Horizons: Extension's Commitment to People. Journal of Extension, Wisconsin, Madison.

Waldron, Mark W. (1986) "Information Technology in Agriculture" Video Satellite presentation from the University of Guelph to the Agricultural Institute of Canada National Conference in Saskatoon.

Webster, A. James, (1986) "Agricultural Technology Transfer - A Case Study". Report to Agriculture Canada, Agdevco, Regina.

Whale, W. B., Hass, G., Hobin, B. (1984) "Agricultural Knowledge Exchange and Farmer Decision-Making". Unpublished manuscript, Division of Extension and Community Relations, University of Saskatchewan, Saskatoon.

Whale, W. Brock, (1985) "Communicating Agricultural Information - A review of Recent Relevant Literature", in Skerrett, B., Watson, D., and Whale, W.B., The Next 5 Years, Communicating Agricultural Information in New Brunswick. Technical Report submitted to New Brunswick Department of Agriculture and Rural Development and Agriculture Canada.

White, W. James, (1984) "Technology Transfer In Agriculture". A Working Paper for Development Policy Directorate, Agriculture, Canada, Ottawa.

Williams, C.M., (1986) "Information - Who Should Deliver?; Who Should Pay?" Plenary Address at Agricultural Institute of Canada National Conference, Saskatoon.